Space Weather Forecast

Issued on Wednesday, 08 June 2022 at 01:13 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight chance of a glancing blow from a weak Coronal Mass Ejection early on 08 June, but low confidence. Otherwise, no significant activity.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Very Low over the past 24 hours, with only minor background flares during the period. There are now no sunspot regions on the visible disc, although there appears to be a potential new region rotating onto the southeast limb, with a further potential new region nearing the northeast limb. It is too early as yet to assess either of these regions.
Two Coronal Mass Ejections (CMEs) were observed travelling northwards in imagery, but neither of these are considered likely to have an Earth directed component. No other CMEs were observed in the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind shows largely background conditions with weak CME effects gradually waning. Wind speeds have been slow, between 300-340km/s. The Interplanetary Magnetic Field started at moderate levels, but gradually eased to weak. The north-south component varied mainly weakly, and has been predominantly southward directed. Geomagnetic activity was Quiet (Kp 1-2).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is expected to be Very Low initially. Returning active regions may increase the risk of flares through the period, although the degree to which this occurs is uncertain until these regions can be seen on the visible disc.

Solar Wind / Geomagnetic Activity: The solar wind is currently at background levels after the recent weak CME. There is a slight chance of a further CME arriving early on Day 1 (08 June), which left the Sun on 04 June. There is low confidence in this aspect of the forecast, and this CME is most likely to miss Earth. There are also two small and weak coronal holes that could give faster winds to around 450 km/s during the forecast period, with the first one likely on Day 3 (10 June) and the second on Day 4 (11 June). The proximity of the Solstice means that any geomagnetic response from coronal holes at this time of year is likely to be muted.
As such, geomagnetic activity is expected to be mostly Quiet through this period. However, there is a risk of Unsettled to Active (Kp3-4) intervals early on Day 1 in the event of the CME arrival, and again on Days 3 and 4 if we see any fast wind effects from the weak coronal holes.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	2	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	1	2	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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